

Serial No. 10/649,885

- 2 -

51001aka

CLAIM AMENDMENTS

1. (Currently Amended) A shut-down circuit configured for use with an electronic ballast coupled to a lamp in a control path, the circuit comprising:

a device for sensing ~~[[the]]~~ electrical energy associated with the control path; and

an electrical sensing circuit for shutting down the ballast in the event that the sensed energy contains high-frequency noise indicative of arcing, including arcing caused by lamp installation or removal ~~does not conform to a predetermined condition.~~

2. - 3. (Canceled)

4. (Original) The circuit of claim 1, wherein the device for sensing the electrical energy associated with the control path is an isolation transformer.

5. (Currently Amended) The circuit of claim 1, wherein the device for sensing the electrical energy associated with the control path ~~includes~~ is an optical isolator.

6. (Original) The circuit of claim 1, further including electronic componentry to disable the sensing circuit during initial energization of the lamp.

7. (Currently Amended) ~~The circuit of claim 1, wherein the sensing circuit includes:~~ A shut-down circuit configured for use with an electronic ballast coupled to a lamp in a control path, the circuit comprising:

a device for sensing electrical energy associated with the control path;

an electrical circuit including a node that should be at or near a predetermined electrical potential when the lamp is operating properly; and

a switch coupled to the node that turns on or off to shut down the ballast if the node is not at or near the predetermined electrical potential.

8. (Original) The circuit of claim 7, wherein the switch is a Schmitt trigger.

Serial No. 10/649,885

- 3 -

51001aka

9. (Currently Amended) The circuit of claim 3, ~~including 1, wherein the electrical circuit includes a high-pass filter or differentiator and detector to detect high-frequency noise indicative of arcing.~~

10. (Currently Amended) The circuit of claim 3, ~~including 1, wherein the electrical circuit includes a phase-locked loop coupled to a low-pass filter to detect high-frequency noise indicative of arcing.~~

11. (Currently Amended) A shut-down circuit configured for use with an electronic ballast coupled to a lamp in a control path, the circuit comprising:

a device for sensing voltage fluctuations in the control path; and

a ~~circuit~~ high-pass filter or differentiator for shutting down the ballast in the event that the voltage fluctuations ~~[[are]] contain high-frequency noise indicative of arcing, including arcing caused by lamp installation or removal.~~

12. (Original) The circuit of claim 11, wherein the device for sensing the voltage fluctuations in the control path is an isolation transformer.

13. (Currently Amended) The circuit of claim ~~[[1]]~~ 11, wherein the device for sensing the electrical energy associated with the control path ~~includes is~~ an optical isolator.

14. (Currently Amended) The circuit of claim ~~[[1]]~~ 11, further including electronic componentry to disable the sensing circuit during initial energization of the lamp.

15. (Currently Amended) The circuit of claim ~~[[1]]~~ 11, wherein the circuit for shutting down the ballast includes:

a node that should be at or near a predetermined electrical potential when the lamp is operating properly; and

a switch coupled to the node that turns on or off to shut down the ballast if the node is not at or near the predetermined electrical potential.

Serial No. 10/649,885

- 4 -

51001aka

16. (Original) The circuit of claim 15, wherein the switch is a Schmitt trigger.

17. - 18. (Canceled)

19. (New) A shut-down circuit configured for use with an electronic ballast coupled to a lamp in a control path, the circuit comprising:

a device for sensing voltage fluctuations in the control path; and

a phase-locked loop coupled to a low-pass filter for shutting down the ballast in the event that the voltage fluctuations contain high-frequency noise indicative of arcing, including arcing caused by lamp installation or removal.

20. (New) The circuit of claim 19, wherein the device for sensing the voltage fluctuations in the control path is an isolation transformer.

21. (New) The circuit of claim 19, wherein the device for sensing the electrical energy associated with the control path is an optical isolator.

22. (New) The circuit of claim 19, further including electronic componentry to disable the sensing circuit during initial energization of the lamp.

23. (New) The circuit of claim 19, wherein the circuit for shutting down the ballast includes: a node that should be at or near a predetermined electrical potential when the lamp is operating properly; and

a switch coupled to the node that turns on or off to shut down the ballast if the node is not at or near the predetermined electrical potential.

24. (New) The circuit of claim 23, wherein the switch is a Schmitt trigger.

GIFFORD, KRASS, GROM, SPRINKLE, ANDERSON & CITKOWSKI P.C. 2701 TROY CENTER DR., SUITE 330, P.O. BOX 7021 TROY, MICHIGAN 48067-7021 (248) 647-6000